1.1 Introduction-

The mechanization of production with the use of water and steam power is the first revolutionary incident in Industry. Mass production by use of electric power is second revolutionary change and 3rd revolution named digital revolution means production automation by use of electronics and IT expressed by cutler (2013). This digital revolution is nothing else, just automation. The communication speed, information flow, production control, flow of material, vehicle movement planning, even though CRM (customer relationship management) is also get influenced by this revolution. Currently Industries are facing difficulties broadly can be classified into 3 types. First One is big size business entity having all resources need solution of challenge of growing competition, cost pressure, efficiency improvement, global concept adoption and operation control, integration with in plant and between plants and so on. 2nd category is of medium size companies having limited resources and wants to manage threat of business environment and own limitation. Small enterprise - 3rd category which having limited approach regarding availability of resources. The Objective is to proceed in current research- to address by identification of difficulties faced and solutions to automotive industry (suspension system manufacturer) of all three categories.

Since automotive manufacturing sector play a vital role in Indian economic growth. The Ministry of Heavy Industries and Public Enterprises, prepared automotive mission plan aims to speed up and to retain same leap of growth in the automotive sector under the period beginning by 2006 and end of 2016. The planning done with main objective - making India as automotive hub for world market with special attention to export of automobile products (cars, auto components to serve after market as spares), two wheeler (scooter/motorcycle) and three wheelers. These plan executions leads in generation of employment opportunities to additional 25 million manpower and also make this sector its contribution double in GDP of country. In terms of value its turn over became USD 145 billion by end of 2016. Therefore, selecting automotive industry as research area is also beneficial to society.

Automation means completely avoiding or reducing human intervention in any process. Industry manufacturing works from raw material to dispatch and capital budget to converting sales into cash; it involves so many activities which are inter-linked and failure of one makes impact on success of other. Such activities success will also determine by relationship maintained by employees among themselves. Good interpersonal relationship (bonding of informal group) is positive point for company if it remains as it is. Practically this does not happen due to variation in like, dislike, perception, behavior of all personality traits.

On the other hand era has its own threat in form of cut throat competition, faster communication expectation internally and by customer externally, reduction in time taken by manufacturing and
delivery of a product- perfection- commitment etc. Therefore, company want automation in their organization to avoid or reduce human intervention in their process to reduce human error, standardize process, machines give same efficiency (anti fatigue) with the passage of time, increase efficiency to optimize level and for speed and accuracy at all stages of their process. Supply chain management follows different practice in different industrial sectors (consumable, automobile etc.). These dissimilarities in practice are need of customer satisfaction with competitive price, whereas automobile and engineering industry has some similarities in their supply chain as explained reference- Jharkharia & Shankar (2006).

Therefore, supply chain automation can do a lot to increase profit and growth of a company. Some of challenges and issue currently observed in supply chain are-

Acceleration collaboration across the value chain.- As auto industry needed to develop value chain by making win – win partnership with other firms, in this strategy there is need of development in three area to point out volatility by improvement in supply chain planning, improve in relation to stand in market for long time and development in partnership model for control on inventory.

Innovation in cost management--for decrease in cost efficiency, there is need of rebuilt relationship with stakeholder to control on risk against joint investment on different parts and tools, for an unsteady demand tiered pricing.

Due to fluctuating market need of control on underused capacity which is big part of total cost. In case of short term fluctuation of market, the shifting hour strategic, flexible production and instant investment should be used; this will reduce the cost of production line.

Proactively manage complexity --due to the product proliferation, the complexity of product increases and there is need of rearrange multiple parts in category wise. This can be achieved by utilize an typical IT strategy for transfer of information, planning, control of inventory. Due to complexity OEMs also develop their designation and processing.

Develop tailored value chains and competencies for exports--India's exports have potential to growth, for utilize it there is need of integration of internal structure of supply chain. Need of developing customized value chain for the specification of international SC which is affected by different factor long planning, lead time, demand, CBU & CKD.

Reconfigure and elevate the supply chain organization--the organization has to reexamine and develop supply chain as it is an effective strategy to grow. OEMs and supplier should organize the training and seminar program for the long term skilled executives.
prepare for regulatory challenges and opportunity---there are some Govt. Policies, recall management which influence the supply chain management. So supply chain has to be redesign which can work efficiently after cover these factors.

Enhance capability to exploit aftermarket opportunity---for the enhance of the aftermarket there is need of development in the strategies of supply chain needed to discussion with stakeholder, win-win partnership, planning for aftermarket, inventory etc.

An essential cog in the growth wheel--- Indian auto industry growing fast having 6th rank in the world with 35 domestic and international firms in competition. As there is increasing demand of customer, short life cycle Indian auto industry facing a revolutionary change. Also there is change in value chain as it is developing, and supply chain strategic also developing creates transformation phase.

Trends impacting India's automotive supply chain is first of----

Long-term secular growth----it is estimated that Indian automotive industry will become the third largest in the world by 2020., and it conclude that the short and medium demand is fluctuating which is main problem of Indian market creates problem for planner, executives as it difficult to handle fluctuating problem, it creates over inventory, under used strategies, risk etc.

Escalating cost of supply chain management----Due to higher fuel and wages the transport cost is higher, it is estimated more than 1.5 percent of total sale and cannot be reduced due to competition in market. This cost directly affects the supply chain and hence margin.

Increase product proliferation---India producing no. of car model which is increasing as a result of three factor customers’ demand and expectation changes time to time, it creates short life cycle of product which lead to no. of models.

Due to globalization company has the product success in other country comes to India which increases competition leads to increase no. of product co- existing of more model in same level of demand.

India is considered as large exporter. India reaches growth of 19 percent in five year (2007 -13). And it is estimated that India will continuously follow the trend due to economic development and production, close to accelerated growth of Indian and African market, policies, matured industry. Head of international business said that India will be the strong hub of export and domestic, OEMs will also come in place for it. India has competitive capacity in design and manufacturing which creates opportunity to take up market global level. Exports growth also
gets increases 15 percent expected in between 2013 - 2020.there is revolution in industry by the entry of supply chain strategy,

Automobile companies (assembly plant) manufacturing their product by assembling child part which brought out from out -side generally having 60- 70% contribution of material in their annual turn- over. Therefore we can say that Supply chain management refers to planning, coordination and follow up of material having seventy percent contribution in companies annual turn -over and play a vital role in growth of organization which further adds up 3 to 5 percent as logistic cost. Supply chain management as a concept means lean and agile flow of material from supplier to manufacturer and then to end customer. SCM is an area where all profit may eat up by failure of chain in terms of- getting material by premier services with high price (premium freight), unavailability of material/parts lead to production loss, loosing customer confidence of delivery, ineffective utilization of resources. Delivery failure not only leads to hampering profits, but may lead to lose your customer for - ever. A customer not getting product on time might get disappointed and spread his experience with others. This will lead to loose of potential customer as well and hinder organization future growth. So, managing SCM effectively and efficiently is must to survive in today competitive business scenario.

Now question arise how we can manage it.

Is there any tool or techniques available or someone should go his own ways. There are so many tools and techniques available, but ERP –MRP got remarkable position as world is now in computer era. ERP (enterprise resource planning) systems were designed before the birth of 24/7 global web economy. It is a software having linkage between all function of an organization.

Researches show that implementation of ERP success rate is only 33% world –wide, where as in India it is only 10%. A report from Gartner (Ganly 2006) says that 25 percent of the ERP implementations fail and that 80 percent are over time or over budget. In the scientific literature different research identified different numbers concerning to implementation failure of supply chain automation through ERP. Barker and Frolick found 50 percent failure of ERP implementations in their study conducted in 2003. (Hong and Kim 2002) and ( Rettig 2007) estimate that 75 percent of ERP implementations are "unsuccessful". (Scott and Vessey 2000) and (Martin 1998) estimate failure rates to be as high as 90 percent. ERP require huge amount as investment in purchasing and implementation. After investing money getting fail is really pain-full to company. Reason of this problem and their solution is purpose of this research work.

1.2 The Problem on hand:-
Some instances happened in past as result of poor supply chain management are Ford company has to close its five plant in North America due to part shortages (Mello 2001), Boeing had to lose $2.6 billion in 1997 due to not supplying parts on time by their two major suppliers, Ericsson faces losses of its 3 market against Nokia in 2000 just because of supply interruption of a chips used for key. Another research found that company loose between 9 to 20% of their value over a six month period due to supply chain problem (Becker, 2000)

ERP require huge amount as investment in purchasing and implementation and operation cost also remarkable. No gain is really pain full as ERP fails and companies does not getting any return in junk investment.

In last decade all industrial revolution concentrate on process automation starting from automation at production line to decision making regarding systems and including integration of current information integration as concluded by Viswanadham 2002. The study of physical movement of goods came into picture in 1960s & 1970s when worldwide cost of logistics was observed as 15 and 25% of total GDP (Gross domestic production) of Industrialized nations by Ballou (2007). This was an urgent and immediate need to improve logistics activity by identifying areas of planning and execution improvement so that level of services and its cost became helpful to stay in the market. Recently market evolved optimization of cost especially through logistic process is more demanding to survive in market. This is true for both types of companies producing good and service provider to achieve competitive edge.

A systematic approach used to develop a frame work to understand supply chain management during 2000s. Research is continued to develop models for analytical depth in supply chain practice and its implementation. (Gundlach et al 2006). Supply chain research is progressing in all units of supply chain operational, strategy formulation and orientation. In response of this need, model development starts which integrate supply chain. The objective of integration, collaboration of supply chain is harmonized with existing demand to set up optimization. Individual process performance does not means that it make optimization of total supply chain as global concept concluded by (Nickl 2005).

With help of ERP the communication between all the levels become fast. It is easy to handle for shareholder and management to control on all the system of company, because every report can deliver immediately and can be seen on screen. It is difficult for employee to make corruption, so there can be easy to give power to employee to a limit of extent. And enterprise can connect with user everywhere.

There were use of technology for making connection between customer, supplier, partners and intermediates but after that internet and electronic technology came to make stronger links. But for an efficient output rethinking of process of business and implementation of ERP is needed.
The Indian automotive industry goes through an change by implementation of SCM in the industry. Due to globalization the relation between supplier and assembler increases. And there is increase in competition in manufacturer which help in increase quality, cost reduction, overall margin, extends market, optimize inventory, estimate the demand. SCM increase the standard of enterprise by introducing IT strategy as help in the fast transfer of information. SCM also help in planning the schedule of order and execution of program in efficient way. SCM help to reduce error in execution of planning and control.

There are different decisions which are taken in industry by the use supply chain; production decision is taken which product has to be produce and its location of production. And which supplier will use it. Location decisions use to locate the area like distribution center etc.

Lewis and Talalayevsky (2004) said that there are different techniques which Indian automotive industry uses in implicating the supply chain like quick response, continuous replenishment programs and efficient consumer response.

Millsetal (2004) study and concluded that there are two ways which employed by Indian automotive industry to manage continuous replenishment programed , in the first way management is done by selection of party who will take the responsibility of control and manage the inventory. In the 2nd way industry manage it by know the value or magnitude of sharing information by different partner. These ways implies boost the supply rate, reduce the cost which targeted chances of availability of product and hence give a high level of service.

Kumar v (2008) said that today as internet technology is growing more and more the automotive company utilizes these techniques for continuous contact with their supplier. For the on line b2b transaction the internet is very useful. The inventory control & cost reduction in Ashok Leyland done by the same technology.

Yusuf et al(2003) in his study concluded that in recent time the Indian automotive supplier were uses the automation technology. There are different type of automation technology some of these are radio frequency terminals, radio frequency data communication, automatic guided vehicles, automated storage and retrieval system. According to Gallegos, j there are two good system which help to control or reduce the cost of inventory and for the increase in production automated storage and retrieval system.

The global supply chain challenges is of integration of various stages and elements. The Material, information and value (value addition on at every stage by processing raw material) flow must be synchronized (Ehm et al 2011). In an automation company, value addition and its flow managed for all element to address custom and financial requirement to take complete benefits of globalization.
The automation of logistics process reduces intervention of human by use of information technology and control system. An automation of supply chain increase production and generate large benefits by reducing cost so that risk to operator can be minimized. (Gracia M.N, 2012). Automation provide full control of process which means tractability of product with other factors like units, weight, quantity, dimension, space required for storage and more over able to find out total inventory value at any time in more accurate and exact manner. Inventory analysis is more comfortable and time saving to interpret data and also increase easiness of decision making, strategy formulation, policy making.

Every year 10 to 30% of logistic and storage operating cost get increased due to inefficient transport mode & storage decision just because of lack in information and methodology adopted. (Gracia P. 2013). This is reason companies’ starts to adopted global technology and model of automation for their administrative process, customer relationship process and productive processes. Some organization became early carrier of technology while some has postponed its implementation till new system attain its maturity stage (Fernandez, 2004). As these organizations already taken decisions to adopt new system and technology they may get benefit from lesson learnt by early adopter. Logistic has change its paradigm from just being a storage and distribution concept to transversal strategy which makes impact on all area of company. (Jin, 2013) and to cope up situation companies becoming more technical at their collection point to be in competitive market. This is going to be a trend since last 5 years when entrepreneurs recognize need of modernization in this area which bring impact on their organization significantly (Lydon 2011). Therefore they taken steps of so many changes in their layout of storage facility. Redesign of layout is based on pattern of movement and good is stored accordingly (worker, 2010). They adopt a process of conveyor belt to load truck and also introduce concept of palletized deliveries, replaced by method of manual loading by human being. They also concerned to adopt new technologies by which they came to know cubic space utilized during loading of truck (Heinze, 2006). They also exploring route optimization with respect to truck utilization and loading plan. They also doing utilization of satellite technology to tack their vehicle, to check fuel consumption and status of delivery at customer end in real time. (Bajaj et al 2002). This way technology allow transporters to integrate information flow and when it is in real time, visibility of supply chain get increase with extensive coverage and expertise services by transporter. Companies can enhance their response time from 5% to 25% by elements discussed above and also can translate this into saving of money and time. (karkkainen 2003).

Ware house automation led to reduction in maintenance cost incurred on to keep inventory by 25% and with same number of staff (head count), output in term of order compliance increase by 76% due to enhance in productivity. (Lee 2002). It also result in reduction of order execution time by 64% and ability to meet customer specific requirement is also improve in same percentage. (Piramuthu 2005).
The efficiency of a logistic distribution center play a vital role, therefore emerging technology of information and communication made it visible and data synchronization is key to cope with speed and quality requirement generated as it is difficult to determine increase in demand. (Tajima 2013). Similarly technologies like identification by bar code are necessary to know what happen to product at each level of supply chain.

The latest automation technology and tools helps companies to avoid their problem or deal with them immediately as they appear to avoid or minimize damage to their brand. (Anderson 2009). Automation system make companies to control their storage, distribution as a centralized process control, attaining higher efficiency in the business production, decrease in production cost and significantly increasing in profit through productivity. Further security system implementation gives reduction in failure of supply chain due to theft and accident. Mostly industrial processes are complex and technical logistic element with increasing pressure of getting higher efficiency at minimum cost. The element of supply chain are encompassed to a greater extent or lesser extent by technology, high level or degree of automation and tools used to make it systematized. (Power 2005).

Automation is not a temporary trend and doing automation just sake of automation is not justified. There is level of automation to provide sustainable growth plan for business. In some cases automation is necessary, but first companies should study their requirement of automation. Companies should analyzed all possibilities based on economic and technical feasibility to define degree on automation to be implemented. (Chan et al 2005).

According to experts of field complete automation of logistics significantly reduces number of manpower engaged. (Zonalogistics 2013). Industry is moving towards fourth revolution which is driven by network and internet. This technology making real world more closer to virtual growing in day by day. In coming day’s production and services grow in personalized manner to full fill the condition of the efficient and flexible system of production. It largely develop integration of business provider and informed, demanding customer for value added product and services and linking of quality service with production is termed as hybrid technology (Cutler 2013).

Supply chain supported by e-business is current key trend in logistics applications. (Skoett et al 2000). Customer responsive improvement largely done by information technology to provide solution to Industry. (Auramo et al 2005).

Almost all authors agreed to ERP as a solution and tool for supply chain automation as larger technology. Planning resources concept introduced by Gartner in 1990s as an evolution. It is also called as MRP II, application used by companies to manage their operation and information through all process. (Pairat et al 2005).
The beginning of this software happen in beginning of 1950s and got its maturity level in 1960s with the help of processors development and application basically to manage inventory. It also include material requirement planning. The foundation function are primary upon which other function added later on. Production control, planning, procurement activity, financial activity and costing all collectively make it integration of multifunction application. (Gibson et al 1999). ERP is the name which continue in development of MRP & MRPII. As technology it address all process related issues like customer relationship and its management, services after sale, guarantees use, planning of distribution, production data collection, supplier relationship and its management, e-commerce, online collaboration and more. (Leopoulos et al 2005). While defining ERP should aware that software is manufactured based on relational database of single management system equipped with analytical tools and a MIS (management information system). (Shuai et al 2007). ERP edition offer a range of variety for user data interfaces, user compatible and required access control, information security & protection, commercial business practice, integration of all process easily with common tool. Now the term ERP is of no worth to use in market application for hospitals, offices etc. other than manufacturing. In general area of application, comprehensive and integrated software solutions offer are marketing as ERP solution. (Ge et al 2006).

Implementation of ERP is considered as an IT project and it is fast growing through companywide. All movement in ERP has significance on performance and the decisions are taken consolidated on the base of considering all the organizational departments and management. ERP affect throughout the organization.

In an organization all the employees of different department and level are arranged around the IT system and key user according to their qualification and knowledge.

The barrier in ERP is that to bring together departments and services which needed an database considering integrated software of finance, logistic. For this key user, IT specialist together has to take action to control this database for the success of ERP.

For some person the change made by ERP creates instability without considering his level, this instability creates hidden resistance.

By the implementation of ERP some profession came into picture as new and other got development. In the beginning of ERP the new profession is temporary, but by daily requirement it will became permanent.

Considering the ERP system as overall framework for automation of supply chain, there are some other technologies also available in market as software and system which can applied to
other macro processes of supply, which complement to ERP system and applicability suits based on organization requirement and production system.

This research work find out what challenges management face in automation of supply chain management through ERP(MM Module).

What are tool and techniques of automation. What are reason of failure of SCM automation ERP(MM Module) and finally proposing solution to SCM automation issues in form of “SUCCESS MODEL”. In order to study how automation benefits to supply chain is one of our objectives of this study.

1.3 Automobile Industry: At A Glance

Automobile sector Industry Performance in 2012-13

Production performance:--

Automobile industry produce 1685355 no. of vehicles in March 2013 where as last year in March 2012 it produce 1845868 no. of vehicles , it shows decline of 8.70 percent.

The cumulative production of vehicle data for the year  2013 (April –March) shows growth of 1.20 percent only against the last year in 2012 (April-March)

Domestic Sales and Export

Domestic sales increased by 2.61 percent in 2013 in comparison of 2012 where as in last month of year March 2013 sales decreased by 7.76 percent in comparison of March 2012.

Sale of passenger vehicles in 2013 increased by 2.15 percent in comparison of2012 and sale of utility vehicle increased by 52.20 percent, vans sale increase by 1.08 percent in comparison of last year 2012 whereas passenger car sale declined by 6.69 percent.

In 2013 total passenger vehicle sale declined by 13.01 percent in comparison of 2012.
In export front overall automobile sale declined by 1.34 percent in 2013 in comparison of year 2012

Below is projection of passenger vehicles production expected to happen in year 2021

As the graph shows, passenger vehicles production in the year 2008 to 2009 is of 1838000 numbers. In 2009-10, it became 2357000 with an increase of 28% in a year. Similarly next year in 2010-11, it again achieve a growth of 26% in production of passenger vehicles (2987000 no.). In 2011-12, the production of passengers vehicles get slow down and entered only a growth of 5% which is 3146000 in numbers.

It again slowdown in 2012-13 and achieve a growth of 2% only and in numbers it became 3234000. The year 2013-14 is worse year in last year for passenger vehicles production, where
its production has submitted negative growth of 5% and in number it became 3073000. This year in 2015-16, it is projected a growth of 65% and number became 5100000. First quarter is under production now and may month is going as good in comparison of last month. In next 5 years, it is projected, going to be almost double with a growth rate of 15-20% every years. The expected number of passenger vehicles going to produce in India will became 10,000,000. This figure indicates that production of such numbers needs arrangement of child part and raw material. It means supply chain management became more complex and having new challenges. It needs more solution to handle more part and transaction and movement of material.
1.4 Concept of Supply chain management—

A set of activity performed to encounter the obligation of a service or product is defined as supply chain (Casati et al 2001).

Supply chain management is a complex process which contains raw material procurement, process to manufacture at one factory or multiple factories, then storage at a warehouse at different location or centrally managed and then distributed to customer or retailers. Consequently reducing cost and improved delivery or service level forced to introduce effective supply chain strategies at various service level expected by customer. Supply chain which is also termed as logistic network consist of supplier, manufacturer, ware houses, distributor, retailer and inventory of raw material, work in process, finished good inventory.

Supply chain which is also termed as logistic network can be defined as -

Supply chain management is a set of approaches focus on effective and efficient integration of supplier, store, warehouse and manufacturers in a manner that manufacturers produce right required quantity at right time with minimize overall cost without hampering service level.

In lieu of above definition supply chain management is integration of flow of material from raw material to finally end customer through logistic. Therefore it should be efficient and effective. Secondly it contain stores and inventories which effect cash flow of company.

Another logistics Management definition given by Council of logistic management is - The process of planning, implementing and controlling the efficient, cost effective flow and storage of raw material, work in process inventory, finished goods, and related information from point of origin to point of consumption for the purpose of conforming to customer requirements. (Reference by Council of Logistics Management).

What make supply chain to be considered as difficult and what are the challenges? In brief there are two reasons.

1. Supply chain network should be designed that overall cost system wide can be minimized without hampering service level.

2. Customer demand always fluctuate and it never forecasted exactly. Travel time became uncertain as vehicle can breakdown at any time. Dispatches from manufacturing site may have disruption due to machine breakdown, work force absenteeism or any industrial unrest. Like In
Indian automobile industry we face problem of labor shortage during crop cutting season and on occasion of festivals like Holi and Deepawali.

1.5 Concept of Automation-

The dictionary defines automation as it is the technique used to make a system, a process, or apparatus to operate automatically.

In other words automation defines as “the creation and application of technology to monitor and control the production and delivery of products and services.”

Supply chain management automation include automation of ordering of raw material or child components or product, automation of invoicing information to customer, automation of loading of material based on ordering, automation of tracking of vehicle, automation of vehicle receipt information to supplier, automation of unloading of material at customer premises, automation of storage, automation of material flow inside customer premises, automation of material movement information at various stages of inventory like work in process, supermarket, finished good area and warehouse storage, automation of material movement from finished good area to dispatch and this cycles repeat till receipt of end customer. It also includes automation of communication like sending purchase order, communication through electronic mails, and digital visualization of stock.

Recently tremendous development takes place in automation of supply chain management. First one which is most important is to work from a common database between its supplier, logistic service provider i.e transporter, its customer and company itself as in a link. Secondly automation makes capable to communicate globally with an inexpensive means among channel partner like supplier, transporter and customer. It is really unquestionable. Thirdly automation is used to control inventories of plant and warehouses and releasing purchase order. Automation became necessary where repetition of work exist or the work where chance of error due to human memory foibles. What are different types of automation exists is also important to know—to get knowledge of technologies available so that best suits to organization can be selected based on its impact on organization need.

1.6 Types of automation-

In our day to day life we see so many functions automatically like withdraw of money by using bank ATM. All automation is not same. There are so many automation tool used. Any
automation have one tool depend on which function we want to automate. Types of automation names are as below—

Artificial Neural Network—

This network is a mathematical computational model which is adaptive in nature. It can change with information based on external and internal exchange of information throughout the network. Artificial neural networks identify patterns in pools of data and secondly to classify relationships such as sequence recognition. Application include e-mail spam filtering, system control such as in a car, pattern recognition in systems such as Radars, pattern recognition in speech, movement, and text, and financial automated trading systems.

Distributed control system—

As the name suggested it a system, which has separate control throughout the system. The controls are not centralized, but tend to be spread out depending on requirements of monitoring as every control is connected to the others in a communication network. These kinds of systems are typically used in manufacturing processes, especially when the production or action is in progress. The controllers can be specified for a given process, and manipulated to enhance or to monitor performance of the machine. Another example of distributed control system is traffic light and they can also be applied in oil refining and central station power generation.

Human machine interface----

A human machine interface system which is referred as user interface is a human machine interface system depends on human interaction with the system to perform a function. A user gives the input and the system in turn provides output that coincides with the user’s intent. ATMs are best example in which user feed his input by pressing the button say withdrawal and system trigger some interlinked commands in internal system and desired result get achieved.

Supervisory Control and Data Acquisition ---

Supervisory control and Data Acquisition is a large industrial control network which is comprised of small- small sub system. These systems able to control entire manufacturing organization or multiple units in an region. This system is very similar to distribution control and it is difficult to differentiate in both. This system are not real time process controller.

Programmable Logic Controllers---
This system works in real time with some dead line and result to be achieved within a defined frame line. Basically, it is used to control a machine on production line i.e., different parameters of machine like temperature, feed, define range of parameter for acceptance or rejection like minimum damping force, maximum damping force. When output comes outside of specification, it indicates rejection. It is used to automate job holding in machine, machining operation, automation of inspection etc.

**1.7 Trend of Automation**

More than 100 thought leader, logistics and material handling practitioner, academician, supplier associates and government summaries their views documented as roadmap to future. Event ended through four round table session held between 2013-2014 in U.S. The most shouted trends are—

1. **Changing workforce:**

Gue said that participants talked about future technologies and then want to talk about only people, of course why not? Participants identified current challenges regarding workforce that rapidly changing workforce faces challenge of undefined or inadequate career path, poor training to new joined, underestimate of team size, existence of inadequate skills. Due to this industry fails to pull multilayer labor force. Participants suggested that industry, academician and government come together to have demographic changes in workforce including women and employees should follow standard practice of recruitment and training at regional as well as national level.

2. **Growth of technology like e-commerce**

Purchase through online as termed as e-commerce get increased day by day. Use of mobile and other medium of online transferring data makes increase in size of market. By 2025 all shipment will have online tracing like when dispatch from supplier, current location, expected time to reach customer, customer receipt information and service level will get enhanced to a level that customer will get service on the same day.

3. **Relentless competition**

Competition in years to come will be of price and services. Who can provide better price and quick service to the customer will become leader. As Gue editor of roadmap to future said historically I will be agree to collaborate with my competitor in a way that I am getting more
benefit then him. Half portion of truck can be shared with other companies of same product to reduce truck, miles and minimize logistics cost, such type of collaboration may occur as standard business practice.

4) Mass personalization----

Generally we get standard products at customized price. Thoughts here is just opposite to that customized product sells at mass production price . Further logistic area should develop versatile capabilities on front of getting orders, delivery through versatile distribution channel.

5) Urbanization---

Currently, more than 50% population of total population of India residing in cities. It means highly dense demand of product which involves typical distribution system. It cost more to deliver a product to last miles. To tackle this challenges large cities need to develop a system of self- shared common distribution channel and customer should also develop capabilities to place order with details delivery point information to retailers.

6) Mobile and wearable computing—

Use of smart phone increases day by day in society. Consumer can place his order through mobile from anywhere and anytime, similarly product can be delivered by identify current location of consumer through mobile. Consumer can also take help of wearable technology like Goggle glass for warehousing and logistic operation. The road map suggestion is that use of wearable technology for execution and control of manufacturing, warehousing and logistic operation get capable by 2025.

7) Automation & Robotics---

Robots are not only working in manufacturing but also started to work in logistic and distribution of material and this trend will became more popular as robotic cost came downs. As per road map of future it may be possible to see driverless vehicles on road and material handling equipment in warehouses. One company name Amazon expected to see some changes in 2015 itself which is presumed to be happening in 2025 regarding automation and robotics. It further anticipate automatic loading and unloading of trucks makes whole operation more economical.

8) Sensors and the internet of things ---
Technologies like radio frequency identification (RFID) create ability to interaction of physical objects with digital systems. This makes systems to gather and provide information of physical movement of materials without intervention of human beings. As this technology became more affordable, blur of communication lines between physical material and digital system will happen and makes system efficient, speed up too many process. Further physical movement of material can resembled with transmission of data through internet regarding shape, size, dimension, colour etc.

The road map of future document suggests that intermodal hubs to be created so that ability to handle standardization at pallet or unit level. Also universally accepted data format to be established for all types of sensor.

9) Big data and predictive Analytics—

The availability of data and computing make sense in order to take decision in changed way by management. It is not like that just have 10% increase in comparison of last year, now you have data, social media, internet to have a look on events to boost up demand like fashion trend.

Road map suggests handling this pool of information supply chain professional use all applications in scheduling and logistic. They got all vehicle movements information and rerouting in real time.

10) Sustainability—

Business and corporates expected to provide better world than got before start. So, sustainability concepts aim to provide agile and lean enough for prosperity. By 2025 more focus will be on material effect on environment and adopt standard practice. Use of energy for transportation and material handling should be towards less consumption. For material handling equipment LEED marked manufacturing and distribution became prime source to adopt.

1.8 Importance and Scope of project--

Zonalogistica 2013, following are benefits of automation.

a) The load can be examined and identified by bar code system during loading process, and then it moved to automatic conveyor and can be placed at designated space with the help of automated cranes.
b) Automatic replenishes system, when any order to customer, blank space can be located with help of computer and new product as per inventory norm placed at vacant place.

c) Automation of shipping process, in this process all order knowledge put in automation system that lead to merchandise.

By use of information automation multiple initiatives can be fully managed in a single system. Such system aligns strategy, project portfolio to meet high challenging demand of global deployment. It provide solution on end to end bases for taking decision and reporting solution in enterprise on elements of cost, projects, processes, managing and tracking.(Oracle white paper, 5th India summit on lean six sigma, March 2014). Latest software solution offered by Oracle in Market is named instantis enterprise track. Its configuration makes it suitable to tackle most demanding challenges for global deployments. It successfully handles all stages of excellence journey, just from beginning to maturity in shape of culture transformation and concept institutionalization.

It improves visibility and thus extracts maximum benefit from the portfolio of improvement. It empowers user by providing right tools so that leader are able to reward their team members on achievement as tangible benefits. It provides alignment of all projects initiatives so that it can attain strategic goal of organization. It efficiently works by harnessing of resources, providing right training and expertise to the people.

Scope of this research work is to identify current level of automation in suspension system manufacturer and their sub supplier. Since concept of supply chain means all stage of supply chain to be covered. Therefore it also cover customer a giant car manufacturer. Study of automation level gives insight knowledge to solution provider. Companies can also get an insight to upgrade their automation.

Some big companies are ready to make investment in technology and systems of automation. Are they getting expected benefits in reality? Implementation of automation has different types of issue than obstacle observed after implementation. Decision to take initiative for automation is solely depend upon management of organization. Even though it gets influenced by customer demand and competition, final call management has to take. At this stage management faces challenges to investment, feasibility study and identification of requirement of automation.

Automation has some other challenges during implementation. At this stage management support, dedicated team, training, preparing of master data and its feeding, system compatibility with user, and flexibility of system and most important is completion of project with in time frame. It has been observed practically that some companies after completion of implementation
task facing issue to sustain it. The objective of this study also includes challenges faced by suspension system manufacturer in automation of supply chain management.

Supply chain management shows positive effect on its efficiency if its matrices defined to measure its performance. Automation solution brings inbuilt ability to measure its matrices like inventory control and timely delivery to customer. Current research also adds impact of automation on supply chain measurement as its scope. Improvement in inventory turnover ratio increases profit of organization directly and improvement in delivery performance delight customer satisfaction and makes positive effect on future business. We conclude effect of automation on inventory turnover and delivery performance in total supply chain of suspension system manufacturer, from supplier to end customer.

Almost all automation solution provider companies claim that by automation integration and visibility of supply chain get increased. Integration of supply chain is vital element. Integration with in company empowers managers to take quick and accurate decision, like fund crisis can be managed by finance manager when inventory figures are visible to him. Marketing manager can book new orders immediately when he has visibility of finished goods. Customer get information in real time of transition material when got visibility of container movement. One of objective added in scope of this research to find out effect of automation on integration and visibility of supply chain.

Since software configuration is universal, actually supply chain nature differ from company to company based on their product, process and customer’s. Therefore automation has issue even after implementation. System, software has its own draw back and fails to handle practical situation. So, we add this issue as well in scope of this research. To find out non logic function of software so that solution provider companies can take care to improve their product and final improvement in suspension system manufacturing companies.

Success rate of automation project is very poor worldwide. Therefore, to avoid wastage of resources and investment, a framework is proposed as success model in implementation of automation in suspension system manufacturer.